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BULLETIN
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Distribution of *Berberis vulgaris* in Pennsylvania*

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During the war extensive campaigns of barberry eradication were inaugurated in the North Middle States because of the part it was believed the barberry played there in the spread of black stem rust of cereals. Later more or less systematic attempts were made to gather facts regarding the barberry and the spread of rust in other parts of the United States. In this work the Office of Cereal Investigations, U. S. Department of Agriculture, co-operated with pathologists and botanists in various states. In Pennsylvania, where the writer assisted in an investigation of the situation, aid was furnished by the Office of Cereal Investigations during the summer of 1919 in the form of expenses for travel, and in the assignment of Mr. Creighton F. Murphy, a special appointee of that office, for work in this state. To the organizing ability and untiring activity of Mr. Murphy is due a large part of any success attained.

One of the first things necessary was to obtain information regarding the prevalence of the barberry in the region. The barberry, *Berberis vulgaris*, is not a native of America but was introduced, doubtless from Europe, cultured either as an ornamental shrub for its fruit, which has been more or less prized for culinary purposes, or as a medicinal plant. It has escaped from cultivation and in some localities in the United States is

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known to be thoroughly established. In any investigation of the distribution of this plant cognizance must be taken of the fact that it is still largely cultivated and that it exists also as an escape. I wish to deal chiefly with the latter phase in the present paper. No attempt is made here to present any conclusions regarding the connection of the barberry to the rust situation.

By turning to the manuals or floras of the northeastern states it was not possible to form a very definite conception of the probable distribution of *Berberis vulgaris* as a wild plant of Pennsylvania. Gray's Manual states that it is to be found in "thickets and waste grounds in eastern and southern New England, where it has become thoroughly wild; elsewhere occasionally spontaneous." This did not indicate that it would likely be found at all common or thoroughly wild in Pennsylvania although our results have shown this to be the case. Britton & Brown's "Illustrated Flora" gives the distribution as "thickets, naturalized from Europe in the Eastern and Middle States, adventive in Canada and the west."

Among the more local publications one would turn first to Porter's Flora of Pennsylvania. Here distribution, as it was known to the author, is outlined by counties. Northampton, Franklin, and Susquehanna are listed under *Berberis vulgaris*. This was a definite beginning. Here were three counties in which this plant was known as an escape to Porter, some time during his botanical career, 1836-1901. Other local publications in the form of regional and county floras soon added additional localities, Dudley & Thurston's Flora of the Lackawanna and Wyoming Valleys (1892) records one bush, west of Archbald, Lackawanna County, and one in a swamp near Kingston, Luzerne County. Twining's Flora of Northeastern Pennsylvania (1917) reports *B. vulgaris* as "local; a pest near Waverly and Wallsville" both in Lackawanna County. Fretz, in a Flora of Bucks County (1905), gives three stations, Bensalem, near Jericho Hill, and Doylestown. From the foregoing account it will be seen that, without an undue search of the literature, definite information was obtained that the barberry had been known as an escape in six Pennsylvania counties. Most of these reports were founded on observations made several years before and in order to know the present day

situation it was evident that further investigations were necessary. As an example of the way in which the literature may fail to be of assistance the case of Lancaster County may be cited. Small & Carter's *Flora of Lancaster County* (1913) makes no mention of the barberry although our work shows that the plant has been established there in several places for a considerable time, most certainly prior to 1913.

Next to the literature, and more important in some ways in a matter of this sort, are herbaria. Specimens in a herbarium are usually accompanied with definite information as to place and date of collection, two extremely important points in tracing distribution. The two leading herbaria in the state, the one at the Academy of Natural Sciences, Philadelphia, and the other at Carnegie Museum, Pittsburgh, were consulted and both yielded valuable information. More than a dozen other institutional or private collections were examined. Contrary to our expectations the Porter specimens were seen at the Academy of Sciences, Philadelphia, and not at Lafayette College, Easton. A number of years ago, in 1896 or thereabout, fire damaged the herbarium of Dr. T. C. Porter, upon which the *Flora of Pennsylvania* was founded, and most of the herbarium was transferred to the Philadelphia Academy.

The most direct aid in checking up localities where barberries previously existed, or in going to new localities, came from the enthusiastic cooperation of persons in all parts of the state, who were interested in plants and had special knowledge concerning particular regions. The finding of so large a number of persons interested in plants and botanical matters was most gratifying, and the contact with them was a most delightful experience as well as being our most valuable asset in this piece of work. Altogether a list of more than 200 names was brought together and more than half of these, approximately 116, were consulted either by personal interview or through correspondence. Starting with the names of those appearing on herbarium specimens and enlarging this to include botany and science teachers in various institutions a sizeable nucleus of botanical enthusiasts was obtained. A person interested in the wild and native plants frequently knew someone in his own or a neighboring county who was also

interested. County agricultural agents often knew the persons in their counties who made botanical collections or observations. Curators of museums, custodians of historical societies, foresters and fire wardens were usually interested themselves or had knowledge of the persons who were. Thus our list grew.

The following lists present in detail the localities where *Berberis vulgaris* has been found growing wild. Altogether the literature and herbarium specimens mention nineteen localities in fourteen different counties. In our work we were able to verify the existence of barberry in 1919 in only two of these stations. Not all of the nineteen were investigated. In spite of specific directions and suggestions we found it impossible to relocate some of the stations. In other cases it is entirely probable that a single bush or two may have formed the basis of the original report and that they had disappeared prior to our investigation. Fourteen new localities are here reported, involving ten counties.

LOCALITIES MENTIONED IN THE LITERATURE

BUCKS COUNTY: Bensalem, *I. C. Martindale*; near Jericho Hill, *Dr. E. Newlin Williams*; Doylestown, *Professor A. S. Martin* (Fretz, *Flora of Bucks County* [Appendix to a county history ?], 1905).

FRANKLIN COUNTY: locality not given (Porter, *Flora of Pennsylvania*, 1903).

LACKAWANNA COUNTY: west of Archbald (Dudley & Thurston, *Flora of Lackawanna and Wyoming Valleys*, 1892); near Waverly and Wallsville (Twining, *Flora of Northeastern Pennsylvania*, 1917).

LUZERNE COUNTY: swamp, near Kingston (Dudley & Thurston, *l.c.*).

NORTHAMPTON COUNTY: locality not given (Porter, *l.c.*).

PHILADELPHIA COUNTY: Germantown, *E. C. Jellett* (*Handbook of the Flora of Philadelphia and vicinity*).

SUSQUEHANNA COUNTY: locality not given (Porter, *l.c.*)

LOCALITIES MENTIONED ON HERBARIUM SPECIMENS*

BERKS COUNTY: half mile south of Fleetwood, August 27, 1915, *W. H. Leibelsperger* (*Acad.*).

* The following abbreviations are used in this list: Acad., for Philadelphia Academy of Sciences; C. M., for Carnegie Museum, Pittsburgh; U. of P., for University of Pennsylvania, Philadelphia.

BUCKS COUNTY: near Doylestown, May–August, 1880, ex. herb. *C. D. Fretz* (Acad.).

CAMERON COUNTY: Driftwood, across the Sinnemahoning, September, 1898, *John A. Shaffer* (C.M. 498).

CHESTER COUNTY: in a thicket one mile southwest of Kennett Square, June 8, 1875, *A. Common* (Acad.).

DELAWARE COUNTY: near Cooperstown, on road from Darby Creek, November 15, 1903; September 18, 1904, *B. W. Griffiths* (Acad.); Darby Creek, May 15, 1919, *Dr. M. W. Henderson* (U. of P.).

ERIE COUNTY: Happy Valley, roadsides, May 1893, *John Miller* (Historical Society); near woolen mill, October 1, 1893, *John Miller* (Historical Society).

FRANKLIN COUNTY: Mercersburg, 1846, Porter Herbarium (Acad.).

LANCASTER COUNTY: Rawlinsville, May–June, 1885, ex. herb. *James Galen* 91 (C. M. 1697).

LUZERNE COUNTY: Myers Swamp, Kingston, 1891, *C. O. Thurston* (Wyoming Seminary).

MONTGOMERY COUNTY: Shannonville (now Audubon) along Perkiomen, July 15, 1892, Herb. *Jas. Crawford* (Acad.); banks of Perkiomen, locustwoods, May 5, 1891, *J. Crawford* (Herb. J. B. Brinton 1443, U. of P.).

NORTHAMPTON COUNTY: vicinity of Easton, May, 1867, *A. P. Garber* 1396 (F. & M.); escaped into copses and woods, Easton; May 25, 1887, *Thos. C. Porter* (Acad.); Easton, May 29, 1896, July 15, 1897; May 25, 1899, *Thos. C. Porter* (Acad.); roadside, College Hill, Easton, September 8, 1898, *Thos. C. Porter* (C. M.); Easton, May 17, 1889, *Thos. C. Porter* (C. M. 2116).

SUSQUEHANNA COUNTY: vicinity of Ararat, elevation 2000–2700 ft., July 8–20, 1900, *C. F. Saunders* (Acad.).

VERIFICATION OF CITATIONS OR COLLECTIONS

BERKS COUNTY: vicinity of Fleetwood, numerous mature bushes. *Specimens*: half mile south of Fleetwood, Ruscomb Manor Township, July 25, 1919, *Leibelsperger, Kern, & Murphy*.

LACKAWANNA COUNTY: near Waverly, exceedingly numerous large bushes.

NEW LOCALITIES

CENTER COUNTY: near Pennsylvania Furnace, twelve miles southwest of State College, numerous large bushes; woodlot on College farm, Pennsylvania State College, observed by C. R. Orton, 1920.

CUMBERLAND COUNTY: near Shippensburg, which is on the line between Cumberland and Franklin Counties.

ERIE COUNTY: in a ravine in city of Erie, a few bushes. *Specimens*: near Rolling Mill site in a ravine, Erie, August 29, 1919, *Miss Cora Smith & F. D. Kern*.

FRANKLIN COUNTY: vicinity of Shippensburg, exceedingly numerous large bushes. *Specimens*: Shippensburg, June 30, 1919, *F. D. Kern*.

LACKAWANNA COUNTY: Frequent in the vicinity of Dalton and Glenburn. *Specimens*: John Woodbridge farm, Dalton, July 31, 1919, *Kern & Murphy*; woodlot of Mrs. Edw. Northrup, Glenburn, July 4, 1919, *C. F. Murphy*.

LANCASTER COUNTY: several localities, thoroughly established. *Specimens*: in thickets along stream, near an old hedge, near Ronk, Strasburg Township, June 29, 1919, *F. D. Kern*; Jacob King Farm, Strasburg Township, June 7, *C. F. Murphy*; near Mt. Nebo Presbyterian Church, Martic Township, July 24, 1919, *Kern & Murphy*.

LEBANON COUNTY: near South Lebanon, origin in seed planted thirty-five years ago, now being dug out.

LEHIGH COUNTY: vicinity of Schoenersville, only two plants seen. *Specimens*: roadside, mile and a half west by southwest of Schoenersville, September 26, 1920, *H. W. Pretz 10535*.

SUSQUEHANNA COUNTY: Brooklyn Township, exceedingly numerous on hillsides and in open woods. *Specimens*: along Scranton-Montrose trolley, between Dimock road and Smith crossing, Brooklyn Township, August 1, 1919, *Kern & Murphy*; Geo. Burgiss farm, Brooklyn Township, July 7, 1919, *C. F. Murphy*.

WYOMING COUNTY: vicinity of Russell Hill, thousands of bushes, forming thickets in pastures.

Judging from its present distribution in Pennsylvania the barberry bush is able to establish itself under varied natural

conditions. Residual soils, whether formed from sandstone and shale, limestone, or igneous and metamorphic rocks, seem to be favorable. Glacial soil seems to be equally favorable although its drainage is poor compared with the residual soils. In thickets along streams, along roadsides, in open pastures, or half-wooded hillsides this plant seems to be at home. The seeds germinate readily and the seedlings are vigorous. Birds and browsing cattle are agents of seed dispersal. Observations on the dissemination of the barberry have been embodied in a separate paper (Ecology, July, 1921). The fact must be kept in mind that in North America *Berberis vulgaris* was first a cultivated plant which has escaped. It is without doubt now more widely distributed than it is generally supposed to be. It is a fateful plant on account of its connection with the black stem rust of cereals and grasses and information concerning its presence as a part of our wild flora is of value.

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